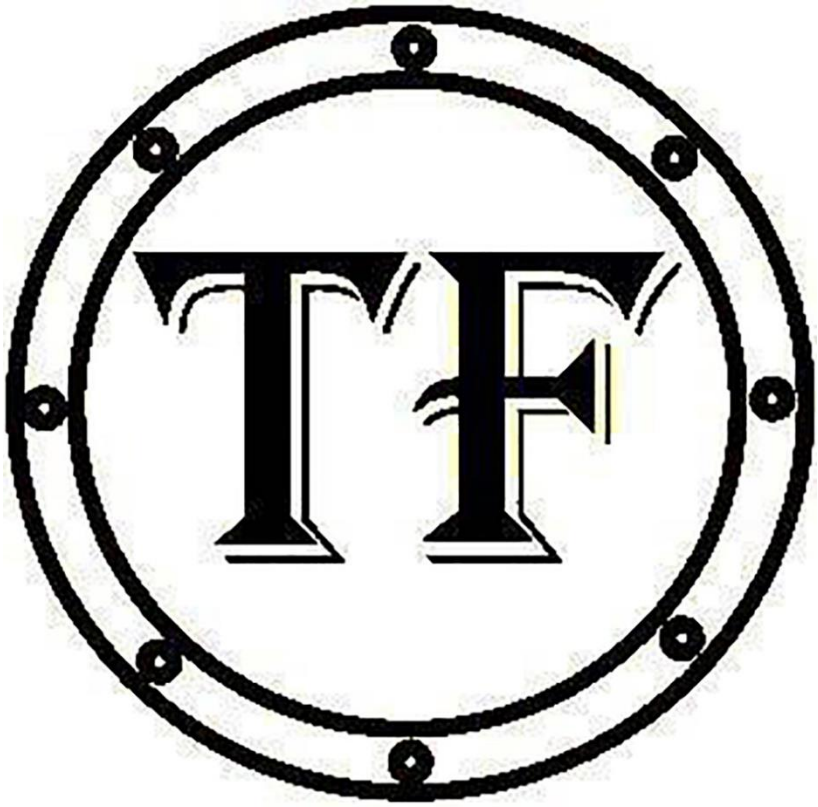
What are Types of Welded Neck Flange, Material, and Specifications?

A flange with a long tapered hub or high hub, known as a weld neck flange, is intended to distribute stress from pipes to alleviate the stress concentration at the flange's bottom.

Two types of weld neck flanges are available: one is suitable for gaskets, while the other, an elongated model, is appropriate for use in process plants but not with pipes.



A circular component extending beyond the circumference rim is included in the weld neck flange created by forging and then welded to pipes.

The rim incorporates multiple holes allowing the attachment of a bolted flange. This design is superior due to its structural integrity.

Weld Neck Flangeis frequently utilized in industrial settings and is known for its adaptability, dependability, and ease of installation and replacement.

This blog will focus on slip weld neck flanges, discussing their potential uses across various applications, the welding procedure employed, and the diverse variations available.

Application and Uses of Weld Neck Flanges

The weld neck flanges are extensively utilized for connecting pipe or fitting. They are specially designed to establish a reliable connection between two pipes or tubing, besides linking various valves and components in a piping system.

Such slip-weld neck flanges commonly find their application in oil rigs, chemical plants, and water lines.

Weld Neck Flanges Welding

Slip weld neck flanges must be firmly affixed using welding techniques. It could be done using an automated welding machine or an oxy-acetylene torch.

All parts must be carefully joined to ensure no leaks or gaps between the components. Additionally, the right variety of welding filler material must be used to build a strong bond between the joined pieces.

Weld Neck Flange Types

Many slip weld neck flanges are available today, including blind, socket weld, lap joint, threaded, and raised face types. The flange type most suits your project, depending on your distinct application and demands.

For instance, blind slips are used in locations where the available space is too limited for a threaded or lap joint connection due to their limited size and clearances around the circumference of the pipe.

Socket butt welds provide better high pressures ratings than other varieties since they sink further into the end of the pipe. Lap joints are particularly well-suited for applications that require frequent dismantling since they fit loosely.

Threaded connections offer easy setup and removal. Additionally, raised face slips protect against leaks by creating an increased seal between two pipes when secured with bolts or screws.

Long Weld Neck Flange

The long welding neck flange is a variant of the conventional welding neck flange and is extended in size.

Its most popular applications are as a nozzle for columns and barrels, available in two distinct models: the Equal LWN Barrel and the LWN Heavy Barrel, which both have a sturdy wall structure and individual shapes.

Reducing Weld Neck Flange

This type of welding neck flange gets its title “reducing” due to its decreasing neck diameter, designed to weld to reduced-sized pipes.

NW Long Weld Neck Flanges

This type of flange is known as a high-hub flange and is designed to transfer stress to the pipe while also reducing the stress concentration at the base of the flange.

Materials of Weld Neck Flanges

A range of materials is applicable for welding neck flanges, as required by asme standards, with the highest level of quality established by ASTM and ASME regulations. The thickness and internal diameter of the flange must correspond to the size of the intended pipe.

Carbon alloy is a highly sought-after material used to construct flanges due to its high resistance to extreme temperatures. As a result, clients and industry professionals may benefit from a

selection of flanges grades, such as the ASME B16 47 ‘A’ Series and ‘B’ Series.

In addition, stainless steel welding neck flanges can be purchased fashioned from ASTM A182, F304, 316L, 347H, 310S, and ASME B16.5 and presented with a duplex steel finish.

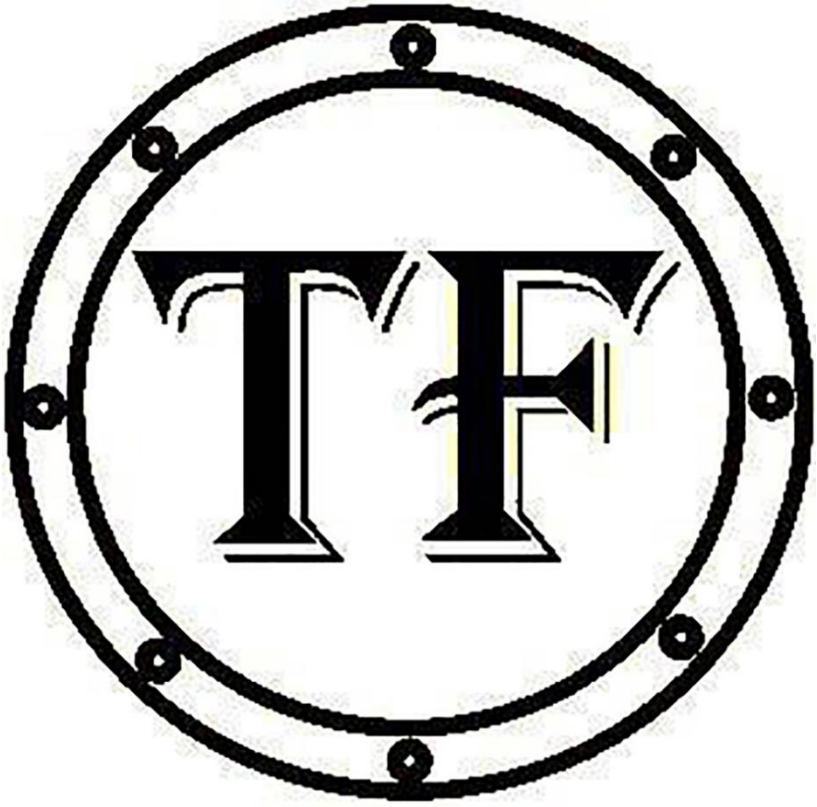
The welding neck flange can be designed from diverse materials such as stainless steel, carbon alloy, nickel alloy, and many others. In addition, the UNS S31803 Duplex Steel material is also in use. As for the Nickel Alloy materials, Inconel 600 and 625, Hastelloy C22, and C276 are available.

Weld Neck Flange Dimensions

ASME B16.5 weld neck flanges in Class 150 come in various sizes, ranging from 1/2″ to 24″.

- The 1/2″ NPS flange has an outside diameter of 3.50″ with four boltholes, an inside diameter of 0.62″, and a raised face thickness of 1.88″.
- For 3/4″ NPS flanges, the inner diameter is 0.82″ while the outer diameter is 3.88″ with a raised face thickness of 2.06″ and four holes for bolts.
- The 1″ NPS weld neck flange has an outer diameter of 4.25″, an inside diameter of 1.05″, with raised face thickness of 2.19″, and the standard number of boltholes is four.
- The 2″ NPS weld neck flange has an inner diameter of 2.07″ and an outer diameter of 6.00″ with a raised face thickness of 2.50″.
- The 5″ NPS flange has an inner diameter of 5.05″ and an outer diameter of 10.00″, with the raised face having a thickness of 3.50″.
- The 6″ NPS flange has an inside diameter of 6.065″ and an outer diameter of 11.00″ with a raised face thickness of 3.50″.

- For 10″ NPS flanges, the inner diameter is 10.02,” and the outer diameter is 16″, with the raised face having a thickness of 4.00″.
- The 20″ NPS flange has an inner diameter of 19.25″ and an outer diameter of 27.50″ with a raised face thickness of 5.69″,
- Lastly, the 24″ NPS weld neck flange has an interior diameter of 23.25″ and an outer diameter of 32.00″.



Conclusion

Are you searching for a reliable way to attach two pieces of piping? Or a secure link between valves and other components in your system?

Look no further than slip-weld neck flanges! Available in several varieties—from blind slips, perfect for tight spaces, to raised faces providing increased protection against leaks—these components are cost-effective and easy to install.

You can use an automated welding machine or a manual oxy-acetylene torch according to your needs. With the appropriate maintenance and installation, these durable pieces can serve you for many years, even under complex conditions.

Explore the wide range of welded neck flange types available at Texas Flange. Whether you need flanges for high-pressure, high-temperature, or specialized applications, we have the perfect solution for your pipe systems.